CORESTA SMOKE STUDY GROUP - FLORENCE, ITALY, OCT. 26 - 28 th

SCIENTIFIC COMMUNICATION

I wish to present a paper

Title : THE EFFECT OF TOBACCO MOISTURE ON THE REMOVAL OF CIGARETTE SMOKE BY THE TOBACCO ROD. D. E. Townsend, R. J. Reynolds Tobacco Company, Winston-Salem, NC 27102

Abstract (150 words)

An understanding of the influences of cigarette parameters on smoke formation and delivery require a knowledge of the extent of smoke removal by the tobacco rod. In the present study, 'tar' and nicotine removal rates were determined by careful measurements of puff-by-puff deliveries as a function of tobacco rod length. The data were found to fit a simple mechanism of coupled first-order removal processes. It was found that for cigarettes made with a full-flavor tobacco blend (12% tobacco moisture), direct condensation of 'tar' and nicotine is a very efficient removal process up to ~20mm behind the char-line. Mechanical filtration of smoke aerosol by the tobacco rod is relatively inefficient. Further, about 50% of the nicotine in mainstream smoke is deposited on the first 10-15mm length of tobacco rod behind the char-line.

The effect of tobacco moisture on the extent of 'tar' and nicotine removal by the tobacco rod was determined by comparison of removal rates. It was found that for cigarettes with tobacco moistures of 12 and 3.8%, the lower tobacco moisture did not affect filtration of the smoke aerosol, but reduced the rates of direct condensation and aerosol formation. Reduced removal rates with lower tobacco moisture result in higher puff-by-puff 'tar' and nicotine deliveries.